

ABSTRACT

Through the Engrossed Substitute House Bill 2496 process, the habitat conditions of salmonid-producing watersheds within WRIA 19 were reviewed and summarized. Major and minor factors that limit salmonid production are summarized below by watershed, beginning with the larger watersheds that produce greater numbers and types of salmonids. Detailed discussions for each of these factors can be found within the body of the report. This first round report examines salmon and steelhead trout habitat conditions. Later versions will address the habitat issues for other salmonids.

The Hoko River is the largest watershed within WRIA 19. Excess sedimentation is a major limiting factor for this watershed, with sources from roads and clearcuts. The sedimentation has led to channel instability and a change in substrate to less suitable spawning gravels. Sediment transport and water velocity effects are worsened by a severe lack of large woody debris (LWD), which is another major limiting factor. Many riparian areas are dominated by hardwoods, and will not contribute to future LWD. Also, it is believed that the change in age and type of surrounding forests contributes to an increased frequency and severity of peak flows. Another major problem includes encroachments to the floodplain, such as riparian roads and an old railroad grade in the mainstem, as well as dikes and channelization in the Little Hoko River. These floodplain impacts constrain the channel, reduce side-channel habitat, and reduce riparian vegetation and associated LWD recruitment. In addition, riparian roads also contribute to excessive sedimentation. Another potentially large problem is low flows in the summer and early autumn. Low flows contribute to high water temperatures and limit the spawning distribution of fall chinook to less stable areas of the mainstem, possibly increasing the likelihood of scour during peak flow events. The naturally low flows are worsened by water withdrawals.

Minor limiting factors in the Hoko River include numerous culverts and changes in the estuarine area. Improving culverts would increase coho and steelhead habitat, but would not address the large problems in the mainstem that impact all salmonid species. The estuarine habitat has been altered by sediment deposition in recent history. The effects of the estuarine sediment deposition on salmon are unclear.

The Sekiu River has extensive sedimentation problems stemming primarily from high road densities and mass wasting sites. The sedimentation has led to debris flows that have incised the mainstem channel and removed LWD. The mainstem provides critical rearing habitat as well as spawning habitat for all salmon species in that watershed. The floodplain impacts to the mainstem such as the Mainline and other riparian roads have greatly impaired salmon production through an increase in channel instability (constrictions), increased sediment, loss of riparian vegetation, and loss of off-channel habitat. Other major problems include a lack of LWD and deep pools, extensive riparian areas that are dominated by hardwoods, and management activities that have significantly reduced the age of the surrounding forests. The alteration of riparian in the mainstem and South Fork has resulted in high summer water temperatures, while the forest management activities have contributed to increases in water turbidity. These water quality issues are

a major problem for salmon within the watershed. A minor limiting factor is passage problems, most impacting coho and steelhead.

One major limiting factor for the Pysht River is sedimentation from roads and mass wasting sites which leads to channel instability, especially in the mainstem. Another major problem is the lack of LWD, which results in increased channel instability and peak flow impacts as well as decreased the formation of pool habitat and spawning gravel storage. The conversion of a conifer riparian to open areas and hardwoods is also a significant limiting factor, leading to a lack of future LWD and high water temperatures. The Pysht River has severe floodplain impacts particularly from Highway 112, which contributes to sediment problems, reduces riparian vegetation, and increases channel instability. The removal of trees along riparian roads also reduces important riparian vegetation for salmon. It is believed that the change in age and type of surrounding forests contributes to an increased frequency and severity of peak flows.

Minor factors in the Pysht River include the channelization of the lower mile and a half of the mainstem, as well as excessive sediment delivery to the estuary. Members of the TAG believed that there may have been a loss of eelgrass habitat in the estuary, but historical data are not available to demonstrate this. Another minor habitat factor is human-caused blockages.

The Clallam River is impacted by excessive sedimentation combined with a lack of LWD and an open or hardwood riparian area. The altered riparian has contributed to high water temperatures in the summer. Significant floodplain impacts include gravel bar scalping and riparian road impacts. There has also been a loss of saltmarsh habitat in the estuary. It is believed that the change in age and type of surrounding forests contributes to an increased frequency and severity of peak flows. Some members of the TAG expressed concern about the intermittent blockage near the mouth caused by gravel, however the problem and potential solutions are not well-understood and need to be studied before restoration activities are planned for this issue. Blockages comprise a lessor impact on salmon production in the Clallam River, reducing coho and steelhead habitat.

Sedimentation is the major limiting factor for Deep Creek. Debris flows have resulted in extensive channel incision and instability. Large woody debris is lacking, and the conversion of riparian vegetation from old conifers to hardwood or open areas results in a future lack of LWD as well as high water temperatures. Channel incision has contributed to floodplain impacts such as a lack of off-channel habitat, and this lack of off-channel habitat has severely impacted all salmonid species in Deep Creek. The excessive sedimentation has also impacted the estuary, where the delta has increased in recent years. Another major problem is the conversion of surrounding forest vegetation to young conifers. The lack of older trees is thought to increase the frequency and severity of peak flow events. Channel incision and the lack of instream LWD worsens water velocities. Blockages comprise a lessor impact on salmon production in Deep Creek, and these are considered a lower priority restoration activity.

Not much is known about current habitat conditions in the Twin Rivers. It is believed that LWD is lacking in the lower reaches, and there is concern about sedimentation from

roads. Fish passage is an issue in the East Fork of the East Twin River, and estuarine impacts exist near the mouths of both Twin Rivers.

The Lyre River has been impacted with fine sediments from Boundary and Susie Creeks. The fines have degraded spawning habitat and increased water turbidity. Other major factors include an alder-dominated riparian in Nelson Creek, a lack of LWD in Nelson Creek, Susie Creek, and the lower mainstem, and a channelization in the lower mile of the mainstem. “Stream cleaning” or removal of LWD contributes to the lack of LWD in this river. Blockages comprise a lessor impact on salmon production in the Lyre River.

The greatest salmon habitat problem in Salt Creek is the lack of LWD, which has resulted in a loss of holding pools for salmon. Other issues include an increased demand for water, unauthorized water withdrawals, and excess sedimentation. These problems are likely the result of land conversion to accommodate development. Development in the floodplain has altered the riparian, and efforts to return the riparian to old conifers should be encouraged. Another significant impact is the loss of saltmarsh in the estuary due to roads. Blockages comprise a lessor impact on salmon production in Salt Creek, reducing coho and steelhead habitat. Another minor problem is the floodplain impact by riparian roads.

The small salmon-producing streams in the east end of WRIA 19 include Colville, Field, Whiskey, Murdock, Jim and Joe Creeks. Major problems in these creeks include a lack of LWD and a conversion of the riparian zone to alder or open areas. Excessive sedimentation is believed to be a problem in Whiskey, Field, Jim, and Joe Creeks. Blockages are known problems in Colville, Field, Jim, and Joe Creeks. Estuarine impacts have occurred near Whiskey and Jim Creeks.

For small streams in the west end of WRIA 19, major problems include a lack of LWD in Agency and Jansen Creeks, as well as in the Sail River. Another major problem is the conversion of riparian in Rasmussen, Bullman, and Jansen Creeks, and the Sail River. In Snow, Rasmussen, Bullman, and Jansen Creeks, excessive sedimentation from roads is another major habitat impact for salmon production, and in Jansen Creek, the resulting turbidity from roads is a significant problem. Blockages are known problems in Agency and Village Creek and the Sail River. High water temperatures have been documented in Agency and Rasmussen Creeks. In the nearshore environment, sediments from Highway 112 are impacting eelgrass habitat.

Many of the major limiting factors are similar throughout the WRIA, and several factors are often the result of a few causes. Because of this, the TAG recommends the following actions for the entire WRIA to help address some of these widespread, complex factors that stem from similar causes.

- Enforce current environmental regulations, such as the Hydraulic Code, Forest Practices Act, Shoreline regulations, Critical Area Ordinances, and Growth Management Act.
- Revise the Growth Management Act to protect salmon habitat.

- Protect the channel migration zone (floodplain) habitat. Floodplain development leads to a loss of riparian forest and loss of future LWD. It also increases sedimentation, channel instability, and water quality problems.
- Protect conifer riparian areas.
- Convert open and hardwood riparian areas to conifer.
- Increase off-channel habitat.
- Increase instream LWD, preferably with attached rootwads.
- Stop the removal of instream wood.
- Prevent the increase of water withdrawals. These can have a large impact on salmon because of the naturally low flow conditions in the summer and early autumn.
- Set up a State/Tribal/County committee to identify and purchase critical salmon habitat for conservation and to address problem areas.